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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,647	01/26/2004	Laura Wills Mirkarimi	10030753-1	1183

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AGILENT TECHNOLOGIES, INC.
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EXAMINER	
DEO, DUY VU NGUYEN	

ART UNIT	PAPER NUMBER
1765	

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/765,647	MIRKARIMI, LAURA WILLS	
	Examiner	Art Unit	
	DuyVu n. Deo	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fathimulla et al. (US 5,338,394) and Pearton et al. (Appl. Phys. Lett. 60 (7)).

Fathimulla describes a method for etching an III-V material comprising: placing the III-V substrate into a RIE chamber and etching the substrate with a gas mixture of HBr and CH4 (claims 1-4). Unlike claimed invention, Fathimulla doesn't describe the gas mixture having H2. Pearton teaches a method for etching III-V material wherein the gas mixture includes H2 (pages 839; left column). It would have been obvious for one skilled in the art at the time of the invention to modify Fathimulla in light of Pearton by including H2 in the gas mixture because Pearton teaches addition of the H2 to the gas mixture provide a much smoother surfaces and Fathimulla teaches that other combinations of gas composition can be used to give a smooth vertical feature (col. 3, line 65-68).

Referring to claims 6, 17, Fathimulla describes the P is about 1-5 mtorr (claim 9).

Referring to claims 7, 18, Pearton further describes the dc bias is 100 V (fig. 2).

Referring to claims 8, 19, with the via hole depth of 100 um, as taught by Fathimulla, this would create a vertical feature having an aspect ratio of greater than ten (col. 2, line 36-37). Referring to claims 9-11, 20 Fathimulla describes a SiN mask (col. 2, line 30-33).

Referring to claims 3-5, 14-16, applied prior art doesn't describe the percentages of the first, second, and third gas. However, the gas percentage is a result-effective variable as discussed by Pearton, where flow rates (gas percentage) of gases are experimented to achieve different etch rates (page 839; left column). Therefore, one skilled in the art would find it obvious to determine each gas percentage through routine experimentation in order to provide optimum gas flow rates or percentages to etch the substrate with a reasonable expectation of success.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 5, 6, 8-13, 15, 16 of copending Application No. 10/692,772. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both describe etching an III-V materials using a gas mixture of HBr (or HI or IBr), CH4, and H2.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

5. Applicant's arguments filed 1/6/06 have been fully considered but they are not persuasive.

Applicant's argument that Ying doesn't describe using a mixture of HBr, CH4, and H2 is acknowledged. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Referring to applicant's argument that there is suggestion to combine the references, applicant has not traversed the suggestion by Pearton that addition of the H2 to the gas mixture provides a much smoother surfaces and by Fathimulla that other combinations of gas composition can be used to give a smooth vertical feature (col. 3, line 65-68).

Applicant's argument that Fathimulla teaches away of using CH4 and H2 since they are always recited by Fathimulla in the alternative is found unpersuasive because this is not a teaching away but it is just teach a way of etching.

The rejection under Mirkarimi is withdrawn since Mirkarimi's patent and the present applicant were owned by Agilent Technologies at the time of the invention.

Referring to the provisional ODP, applicant must file a TD in order for the withdrawal of the provisional ODP. Please see MPEP, page 800-17, and 800-18, section Nonstatutory Double Patenting Rejections.

Information Disclosure Statement

6. The information disclosure statement filed 2/15/06 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the statement cited is incorrect. The correct statement under 37 C.F.R 1.97(e) should be:

7. Each item of information contained in the information disclosure statement was ***first*** cited in any communication form a foreign patent office in a counterpart foreign application not more than three months prior to the filling of the information disclosure statement.

8. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n. Deo whose telephone number is 571-272-1462.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Primary Examiner
Duy-Vu N. Deo
3/9/06